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FURTHER NOTE ON THE COURSE OF THE TASTE FIBRES.

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Reprinted from the Edinburgh Medical Journal. *Edinburgh and London*, Young J. Pentland, *June*, 1897.

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When I wrote the article "On the Course of the Taste Fibres," which appeared in the April number of this Journal, I did not know of Professor Fedor Krause's work, "Die Neuralgie des Trigeminus." For this I have no excuse to offer. The work, it is true, does not bear an anatomical title, and therefore was the more likely to escape my eye. Still, it is right to state that a notice of it by Dr. Aldren Turner appeared in the same number of this Journal which contained Dr. Gowers' paper on "Paralysis of the Fifth Nerve."

Having read Professor Krause's most interesting account of the condition of six different patients in whom the Gasserian ganglion was removed for neuralgia of the fifth nerve, I believe we are more than ever compelled to give up the idea that the fifth nerve is a nerve of taste. It is true, however, that Professor Krause himself does not come definitely to this conclusion.

Krause's results conclusively prove that the fifth nerve is not the only nerve of taste, even for the anterior two-thirds of the tongue. An analysis of his six cases shows that in one only was

there a distinct loss of taste at the root of the tongue or on the soft palate. As regards the tip and anterior two-thirds of the tongue, in three out of the six cases some taste sensation was retained after the fifth nerve roots were removed, although certain substances were either not tasted at all or their sensation was delayed. In two cases taste sensation in this region was lost, one of these being that already noted as having no sense of taste on soft palate or root of tongue. In the sixth case the patient, after removal of the Gasserian ganglion on one side, tasted equally well on both sides.

The patients thus present very different conditions as regards sensations of taste on the anterior part of the tongue after removal of the fifth nerve roots. The results of other authors which are detailed in Professor Krause's work are found to vary in a similar manner. We may at least safely conclude, however, that for the posterior part of the tongue the taste fibres present in the glosso-pharyngeal nerve do not usually reach the brain by the fifth nerve roots through connections existing between the ninth and fifth nerves. This conclusion is supported by anatomical and embryological considerations.

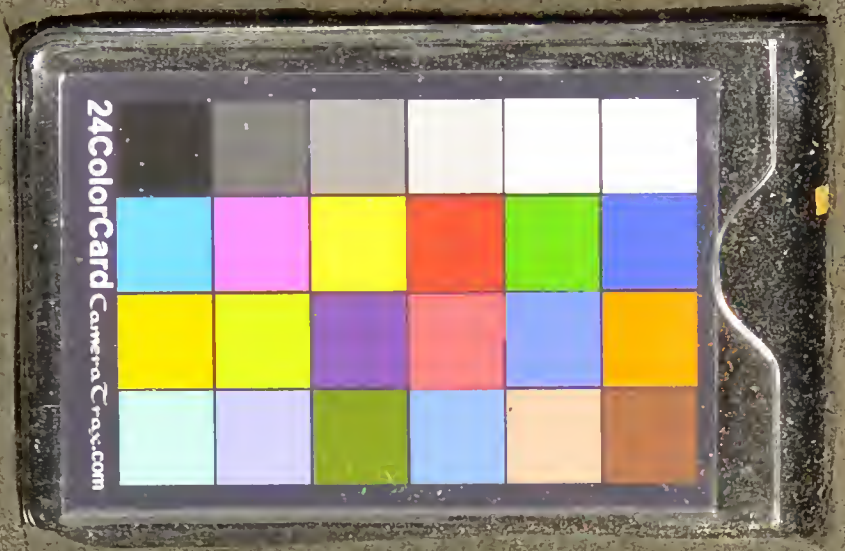
Since the operation of removing the fifth nerve roots often destroys taste sensation more or less on the anterior part of the tongue, it is fair to assume that in addition to the ninth nerve there is some other nerve of taste. Anatomical and embryological considerations point to the sensory part of the facial nerve as the path for these impulses. Professor Krause does not appear to recognise that the seventh nerve is in itself partly a sensory nerve, because he concludes that in those cases in which taste sensation is present on the anterior two-thirds of the tongue, after destruction of the fifth nerve, the impulses reach the brain through the ninth nerve, by means apparently of the communications effected between that nerve and the geniculate ganglion (p. 89). In another place we find him quoting a case in which he removed the second division of the fifth nerve with negative results as regards taste, while a later removal of the Gasserian ganglion in the same woman caused complete loss of taste sensation, as supporting the idea that taste impulses from the anterior two-thirds of the tongue travel by the chorda tympani into the lesser superficial petrosal, and thus by the otic ganglion into the third division of the fifth nerve. The last observations he lays great stress on, as he considers the conclusions based on them very sound. On the whole, however, reading his work carefully, he appears to believe that the course taken by the taste fibres from the anterior part of the tongue varies in different individuals.

It certainly seems rash to assume a variability in the course of the taste fibres for the anterior part of the tongue, while everything seems to prove that this is not so for those from the

posterior part. Further, the chorda tympani fibres, which undoubtedly convey taste impulses for this region, are most constant in their mode of development. The variations in taste sensation observed after operations for removal of the fifth nerve roots and the Gasserian ganglion can only be due to one or other of two causes — (1) The taste fibres reach the brain in different individuals by different paths, or (2) in the course of, or subsequent to, the operation, certain structures are involved in some cases which escape in others. The latter seems to me to be far the more probable explanation. During the course of the operation it is found necessary to strip the greater part of the middle cranial fossa of its dura mater, and in doing so, as Professor Krause states, the great and small superficial petrosal nerves are easily injured or sometimes destroyed. If one examines the floor of the middle cranial fossa in a number of bones, one finds that sometimes the tubular part of the hiatus Fallopii is so short that the geniculate ganglion of the facial nerve is excluded from the middle cranial fossa by the dura mater only. If the Gasserian ganglion is operated on in such a case, it is extremely difficult to see how the cells of this ganglion can escape injury or destruction, and if they are involved, the central connection of the chorda tympani nerve with the brain is lost.

It does not seem, then, that the irregularities observed in the symptoms of Professor Krause's cases after removal of the Gasserian ganglion point deeper than to slight differences in the amount of damage done to neighbouring structures. If we assume the sensory part of the seventh nerve to be the nerve of taste for the anterior part of the tongue, as we have every anatomical and embryological reason for doing, all the variations so carefully detailed by Professor Krause gain explanation from the varying amount of injury necessarily caused to this nerve by the operation in its immediate neighbourhood.

Professor Krause's observations are compatible with the theory that the seventh and ninth nerves are the nerves of taste, and with no other at present put forward. Since this is so, the theory that these are the true paths for taste impulses is supported by anatomical, embryological, and experimental evidence.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